

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 October 2004 (21.10.2004)

PCT

(10) International Publication Number
WO 2004/089851 A1

(51) International Patent Classification⁷: **C04B 35/64, B29C 67/00**

(21) International Application Number: **PCT/US2004/010176**

(22) International Filing Date: **1 April 2004 (01.04.2004)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
60/460,326 **4 April 2003 (04.04.2003) US**

(71) Applicant: **SIEMENS AKTIENGESELLSCHAFT [DE/DE]; Wittelsbacherplatz 2, 80333 Munich (DE).**

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GOLDSCHMIDT, Dirk [DE/DE]; Hagebuttenweg 14, 47445 Moers (DE). BUBLATH, Boris [DE/DE]; Krowelstr. 26, 13581 Berlin (DE). DAUS, Nikolai-Alexander [DE/DE]; Ibsenstr. 53,**

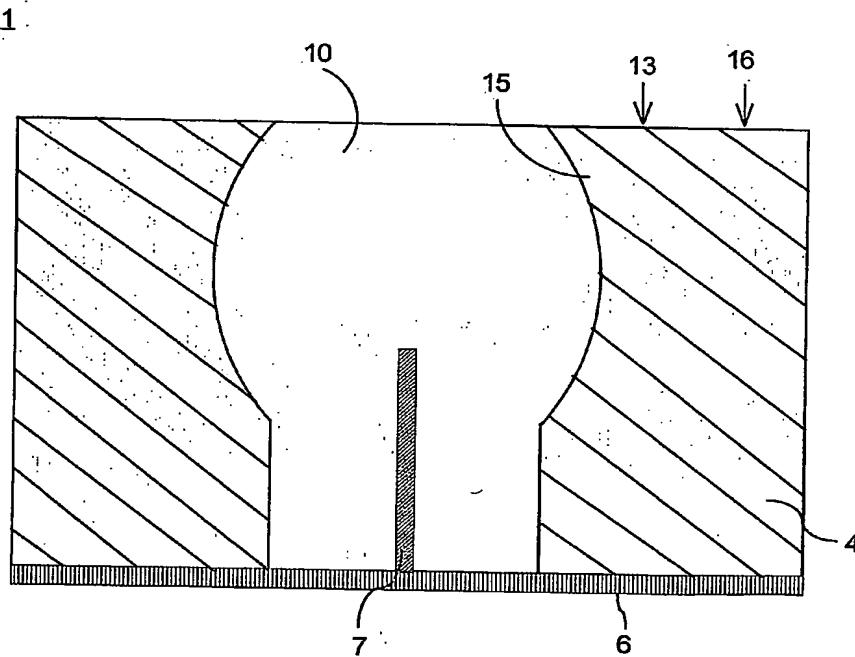
(74) Agents: **MUSONE, John, P. et al.; Siemens Corporation- Intellectual Property Dept., 170 Wood Avenue South, Iselin, NJ 08830 (US).**

(81) Designated States (unless otherwise indicated, for every kind of national protection available): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): **ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,**

[Continued on next page]

(54) Title: **METHOD FOR PRODUCING CERAMIC OBJECTS**



(57) Abstract: A process for forming a ceramic object using selective laser sintering of ceramic powder is provided. The chemical composition and size distribution of the powder may be varied between various regions of the object, and the temperature achieved by laser heating may be varied between regions to achieve the desired degree of densification. In one embodiment, a ceramic mold (1) is formed in to have an envelope portion (4) and a core portion (7) with differing properties using a fast prototyping laser sintering process.



GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.